ABSTRACT
An efficacy study was performed using a UV-C and Ozone-generating device, the PathO3Gen Solutions™ Footwear Sanitizing Station, against Escherichia coli (E. Coli), Pseudomonas aeruginosa, Methicillin-resistant Staphylococcus aureus (MRSA Super bug), Vancomycin-resistant Enterococcus faecalis (VRE), Carbapenem-resistant Klebsiella pneumoniae, Candida auris, Aspergillus brasiliensis, and Clostridiodes difficile (C. diff). And log and percent reduction were quantified for each microorganism at three exposure times: 6, 8, and 10 seconds.

METHODS
Each microorganism was individually inoculated on separate petri dishes and incubated at appropriate temperatures for a specific time period to allow for growth and colonization. Control samples were taken as well for all.

After the preparation of the microorganisms, a shoe sole (hard rubber substitute) was inoculated with the bacteria and then placed onto the sterilized foot sanitizing station with a 150 lb. volunteer on top of the shoe with a sterile barrier between them. The shoe and volunteer remained on the sanitizing station for each designated testing time period of 6, 8, and 10 seconds. Three tests were completed per microorganism, and time period. From the hard rubber substitutes inoculated with bacteria, two samples were taken from the shoe and placed in a petri dish and incubated for the appropriate lengths of time at specific temperatures.

After incubation, the viable microorganism colonies were counted, and data recorded. From the sample and control dishes, log percent reductions were calculated.

RESULTS
The results from this study showed that for every type of bacteria, fungi, and spore tested, a reduction of at least 90% was seen. Meaning that from the viable bacteria which infected the sole of a shoe, the FSS was able to destroy, at its lowest time interval and toughest organism, 90% of the microorganism. It kills Candida auris at 5.16 log in 10 seconds which is 99.999% which is very difficult and unheard of from any other product.

CONCLUSION
The Footwear Sanitizing Station is a uniquely innovative product with UVC and Ozone patented technology that effectively kills microorganisms at the high log percentages at 6, 8, and 10 second intervals. It kills CRE, VRE, and MRSA at percent, two log over industry gold standards.

Why is this study important, because floors matter! Floors are a probable source of infection transmission. In the study by Abhishek Deshpande, MD, Ph.D., and colleagues, researchers cultured 318 floor sites from 159 patient rooms (two sites per room) in five Cleveland-area hospitals. The hospital rooms included both Clostridium difficile infection (CDI) isolation rooms and non-CDI rooms. Researchers also cultured hands (both gloved and bare, to simulate different scenarios of people picking things up off the floor) as well as other high-touch surfaces such as clothing, call buttons, medical devices, linens, and medical supplies.

The researchers found that floors in patient rooms often were contaminated with methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant Enterococci, and C. difficile, with C. diff being the most frequently recovered pathogen in both room types.

Denaturing pathogens before they can enter the hospital by placement of stations at the entrance and exits (the perimeter) and in high risk areas can reduce the microbial load that leads to the spread of infections.

REFERENCES
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